UNIVERSITI PUTRA MALAYSIA

PREDICTORS OF SELF-REGULATED LEARNING IN SECONDARY SMART SCHOOLS AND THE EFFECTIVENESS OF SELF-MANAGEMENT TOOL IN IMPROVING SELF-REGULATED LEARNING

NG LEE YEN.

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By

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

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Chairman: **Professor Kamariah Abu Bakar, Ph.D.**
Faculty: **Educational Studies**

The Smart School Project was implemented in 1999. It aims to systematically reinvent the teaching and learning processes in schools to produce not only knowledgeable and IT-literate students but also self-regulated learners. However, many teachers may not realize the factors related to self-regulated learning. There are needs to uncover these factors as this information may assists teachers in promoting self-regulation in smart schools. In addition, students may not be able to self-regulate their studies efficiently as they are accustomed to the conventional teacher-centered way of learning. Therefore, they need a Self-Management Tool that can guide them to employ self-regulated learning strategies constantly and practically. This tool may improve students' self-regulated learning skills and enables them to manage their studies more efficiently in smart schools. The objective of this study, thus, was twofold. It aimed to identify the predictors of self-regulated learning in secondary smart schools and also to examine the effectiveness of the Self-Management Tool in improving self-regulated learning.

A quantitative correlational research design was used to determine the predictors of self-regulated learning. The sample consisted of 409 students, from six randomly chosen smart schools. The data were collected through survey method. Multiple regression analysis showed that levels of IT-integration, student-teacher interactions, motivational beliefs, and self-regulative knowledge were significant predictors of self-regulated learning [$\Delta R^2 = .51$, $F(5, 403) = 84.48$, $p < .01$].

A quasi-experimental design was employed to test the effectiveness of the Self-Management Tool in improving self-regulated learning. The subjects were taken from a randomly chosen secondary smart school. A total of 61 students were involved; 30 students in the experimental group and 31 students in the control group. After three months of treatment, Analysis of Covariance (ANCOVA) revealed that there seemed to be no true difference in self-regulated learning between the two groups, [$F(1, 56) = 2.39$, $p > .05$]. However, eight weeks after that, the experimental group's self-regulated learning was found to be significantly higher than the control group, [$F(1, 55) = 31.04$, $p < .01$]. This suggests that the Self-Management Tool was effective in improving students' self-regulated learning.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PERAMAL PEMBELAJARAN ATURAN KENDIRI DI SEKOLAH-SEKOLAH MENENGAH BESTARI DAN KEBERKESANAN ALAT PENGURUSAN DIRI DALAM MENINGKATKAN PEMBELAJARAN ATURAN KENDIRI

Oleh

NG LEE YEN

Julai 2005

Pengerusi: **Profesor Kamariah Abu Bakar, Ph.D.**
Fackulti: **Pengajian Pendidikan**

Projek Sekolah Bestari dilaksanakan pada tahun 1999. Ia bermatlamat untuk merombak proses pengajaran dan pembelajaran di sekolah demi melahirkan pelajar yang bukan sahaja berpengetahuan dan celik teknologi maklumat tetapi juga berkemahiran dalam pembelajaran aturan kendiri. Namun, kebanyakan guru mungkin tidak mempunyai pengetahuan tentang faktor-faktor yang berkaitan dengan pembelajaran aturan kendiri. Faktor-faktor ini perlu dikenalpasti kerana maklumat ini boleh membantu guru meningkatkan pembelajaran aturan kendiri di sekolah bestari. Selain daripada itu, pelajar mungkin tidak mampu menguruskan pembelajaran mereka dengan cekap kerana mereka sudah biasa dengan kaedah pembelajaran yang berfokuskan guru. Justeru itu, pelajar memerlukan sebuah Alat Pengurusan Diri yang dapat membimbing mereka menggunakan strategi-strategi pembelajaran secara kerap dan praktikal. Alat tersebut mungkin boleh memperbaiki kemahiran pembelajaran aturan kendiri di kalangan pelajar dan membolehkan mereka menguruskan pelajaran dengan lebih efektif di sekolah bestari. Oleh itu, kajian tersebut mempunyai dua objektif; ia bertujuan untuk

mengenalpasti peramal pembelajaran aturan kendiri di sekolah menengah bestari dan juga menyelidiki keberkesanan Alat Pengurusan Diri dalam memperbaiki pembelajaran aturan kendiri.

Kajian berbentuk kuantitatif kolelasi digunakan untuk mengenalpasti peramal-peramal pembelajaran aturan kendiri. Sampel kajian terdiri daripada 409 pelajar, dari enam buah sekolah bestari yang terpilih secara rawak. Data kajian dikumpul melalui kaedah soal selidik. Keputusan analisis regresi berganda menunjukkan bahawa tahap integrasi teknologi, interaksi antara pelajar dengan guru, kepercayaan motivasi dan pengetahuan tentang strategi pembelajaran merupakan peramal pembelajaran aturan kendiri yang signifikan [$\Delta R^2 = .51$, $F (5, 403) = 84.48$, $p < .01$].

Reka bentuk eksperimen-quasi digunakan untuk menguji keberkesanan Alat Pengurusan Diri dalam meningkatkan pembelajaran aturan kendiri. Subjek kajian diambil daripada sebuah sekolah menengah bestari yang terpilih secara rawak. Seramai 61 orang pelajar terlibat; 30 orang pelajar dalam kumpulan eksperimen dan 31 orang pelajar dalam kumpulan kawalan. *Analisis Kovarians* (ANCOVA) menunjukkan bahawa tiada perbezaan signifikan dalam pembelajaran aturan kendiri antara kedua-dua kumpulan tersebut selepas kajian tamat, [$F (1, 56) = 2.39$, $p > .05$]. Namun, lapan minggu selepas itu, kumpulan eksperimen didapati mempunyai pembelajaran aturan kendiri yang lebih tinggi secara signifikan daripada kumpulan kawalan, [$F (1, 55) = 31.04$, $p < .01$]. Ini menunjukkan bahawa Alat Pengurusan Diri berkesan dalam meningkatkan pembelajaran aturan kendiri di kalangan pelajar.

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I certify that an Examination Committee met on 28th July 2005 to conduct the final examination of Ng Lee Yen on her Doctor of Philosophy thesis entitled "Predictors of Self-Regulated Learning in Secondary Smart Schools and the Effectiveness of Self-Management Tool in Improving Self-Regulated Learning" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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Universiti Putra Malaysia

Date: 22 AUG 2005

I certify that an Examination Committee met on 28th July 2005 to conduct the final examination of Ng Lee Yen on her Doctor of Philosophy thesis entitled "Predictors of Self-Regulated Learning in Secondary Smart Schools and the Effectiveness of Self-Management Tool in Improving Self-Regulated Learning" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as fulfilment of the requirements for the degree of **Doctor of Philosophy**. The members of the Supervisory Committee are as follows:

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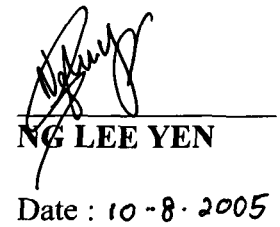
Date : 08 SEP 2005

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



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CHAPTER I

INTRODUCTION

Background of the Study

Self-regulation is one of the most intriguing areas in human studies because people are always fascinated with the understanding of how individuals seek to control their own physical, behavioral and psychological qualities. In order to understand this psychological construct, numerous studies have been carried out by researchers in various fields ranging from health care (Walshe, 2003; Richard, Reinhardt & Elias, 2002), management (Dawn & Boyce, 2003) to education (Wolters, 2003; Benson, 2001). Research on self-regulation is currently focusing on education pertaining to learning and academic achievement processes.

Studies on self-regulated learning have grown out of more general efforts to investigate students' learning. Research during the past 30 years on students' learning has progressively included emphases on cognitive strategies, metacognition, motivation, task engagement, and student-centered learning. Self-regulated learning emerged as a construct that encompassed these various aspects of academic learning and provided more holistic view of the learning strategies, motivation and knowledge that students acquire.

Generally, self-regulated learning describes how learners metacognitively, motivationally and behaviorally promote their own academic achievement (Zimmerman, 1986). Metacognitively, self-regulated learners plan, organize, self-monitor, and self-evaluate at various stages of the learning processes. Motivationally, self-regulated learners perceived themselves as competent, self-efficacious, autonomous and they work hard to achieve their academic goals. Behaviorally, self-regulated learners select, structure, and even create environments that optimize learning. According to researchers, self-regulated learning is reflected by the usage of self-regulated learning strategies. These strategies include rehearsal, elaboration, organization, critical thinking, metacogitive self-regulation, time and environment management, effort regulation, peer learning as well as help seeking (Pintrich, Smith, Gracia, & McKeachie, 1991).

Self-regulated learners are characterized as active learners who efficiently manage their own learning. They start by analyzing task requirements, defining performance criteria, and setting learning goals. These steps are critical because learners make decisions about how to self-regulate learning based on perceived task demands. Next, self-regulated learners identify strategies likely to accomplish their objectives. This entails selecting and adapting strategies to match task demands. Finally, self-regulated learners implement strategies, monitor outcomes associated with strategy use, make judgments about task performance and adjust strategies based on the success of their efforts.

Self-regulated learning is a vital skill in IT-integrated learning environment. Its importance became evident after the recent explosion of Information Technology (IT). There is now substantial body of research showing that learning in IT-integrated environment is an active and constructive process (De Corte, 1990). Students are not passive receptacles of information, but actively construct their own knowledge and skills through interactions with the environments. In such settings, students are required to complete many assignments, projects, and folios independently, hence competency in self-regulated learning plays an important role in determining the success of learning.

IT can promote self-regulated learning as it provides students with tools such as personal computers, educational software, and Internet that support and enhance self-learning. Learning became more student-centered, independent and exploratory in nature. Kenning (1996) for example, asserts that the Internet is strongly supportive of self-regulated learning as learners can study whenever they want using a potentially unlimited range of authentic materials. They can also converse quite easily with experts in various fields or seek information from other students around the world. In this information age, no doubt, the Internet is an essential source of information for students. While it has always been imperative for students to learn how to select, organize, and evaluate information, it is even more so now. About 35,000 websites are created every four hours, making the Internet a vast, yet potentially confusing resource for students ("Guide Students to Use the Net," 2003). Therefore, teachers have to teach students how to manage information, which is obtained from